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ABSTRACT

This report investigates the training and retaining of physicians for Washington. The report concludes: (1) Washington does not have a desperate overall shortage of physicians, but the state is faced with serious physician distribution problems, particularly in urban ghetto and rural areas. (2) The University of Washington's School of Medicine is well along in the development of several major education programs, including a return to an emphasis on family medicine, which have promise of alleviating physician distribution problems. (3) Although Washington would be ill-advised simply to copy all aspects of the Indiana statewide community medical education program, some portions of this program could be used to special advantage in Washington. (MJM)

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Council on Higher Education
State of Washington

A Report on Medical Education:

The Training and Retaining of Physicians for Washington

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A Report on Medical Education:

The Training and Retaining of Physicians for Washington

Samuel Moffat, Medical Education Consultant
Council on Higher Education - August, 1972

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INTRODUCTION AND SUMMARY

This report on medical education in Washington has been prepared in the context of a few narrowly prescribed concerns of the 1971 Washington State Legislature. The resolution adopted by the legislature requesting this study directed the Council on Higher Education to examine the training and retaining of physicians, with special reference to the field of family practice as tied to the needs of the state's disadvantaged and rural population. In addition, the resolution sought an evaluation of recent developments in Indiana concerning statewide community medical education, including whether or not certain of the Indiana programs could be used to good advantage in Washington.

In brief, the report which follows concludes that:

(1) Washington does not have a desperate overall shortage of physicians but the state is faced with serious physician distribution problems, particularly in urban ghetto and rural areas.

(2) The University of Washington's School of Medicine is well along in the development of several major education programs, including MEDEX, WAMI, and a pathway for family medicine, which have promise of alleviating physician distribution problems and which merit the long-run support of the

State of Washington.

(3) Although Washington would be ill advised simply to copy all aspects of the Indiana statewide community medical education program, some portions of this program could be used to special advantage in Washington. Accordingly, this study recommends:

A. That the Governor and the legislature provide limited but earmarked funds for statewide continuing medical education which would be developed under the auspices of the School of Medicine and which would be used to give special emphasis to the programming and staffing needs of community hospitals.

B. That an across the board subsidy not be initiated for all hospital residency programs (as essentially was the case in Indiana), but instead Washington should limit its support to only those residency programs established for family medicine or family practice.

C. That a state medical education board not be established, even though Indiana followed this route, because its only purpose would be to assure equitable geographic distribution of funds for family practice residency programs. While it is important that any subsidies provided for the support of residency programs be allocated equitably, this objective can be more readily accomplished by language inserted in a legislative appropriation bill.

Finally, it has not been the purpose of this report to identify in detail specific medical education programs which should or should not be supported in the future. Instead the overall tone of the report has been to recognize that many outstanding programs are currently underway, but, in addition, the state should strongly consider providing supplemental funds for medical education, especially in the field of continuing medical education. The precise ways in which additional funds can be used most effectively should be the responsibility of the medical educators in this state who have already demonstrated outstanding state and national leadership capabilities.

Chapter 1

WHY THIS STUDY

This report is an outgrowth of two related actions on the part of the House of Representatives of the State of Washington in 1971.

House Bill No. 1079 was introduced in the Legislature during March 1971. The bill would have "established a plan for statewide community medical education" for the purpose of attracting and retaining more physicians for the State. The plan proposed "the establishment or expansion of community residency training programs," whole or partial funding of "off-campus directors of medical education located throughout the state," grants-in-aid "for financial support of personnel or programs,"[1] and establishment of a five-member medical education board to "establish policies for the use of such funds as are appropriated by this or subsequent legislatures."[2]

This bill was read for the first time on March 20, 1971 and then was referred to the Committee on Higher Education. On April 2 the House of Representatives adopted Floor Resolution No. 71-44 requesting that the Council on Higher Education "make an interim study on the training and retaining of more physicians, medical corpsmen particularly, in the field of family practice for the State of Washington," and report

back to the Washington State Legislature "recommended action on House Bill No. 1079 or other legislation to achieve the goals outlined herein...."

Resolution No. 71-44 expressed concern "with the shortage of physicians, especially the need for more adequate numbers to care for the disadvantaged, serve the more rural and isolated communities, and replenish the field of family or general practice...." It also cited "general agreement among experts...that at least part of this shortage is due to the fact that a large majority of each year's graduates are entering fields other than those of primary medical practice...."[3]

House Bill No. 1079 is sometimes referred to as the "Indiana Plan"[4] because it incorporated certain features of legislation enacted in Indiana to overcome a shortage of medical students, interns, residents, and practicing physicians there, and to overcome deficiencies in continuing education for practicing physicians. The bill introduced in the Washington State Legislature, however, does not incorporate all the features of what became the Indiana Statewide Medical Education System. The present study examines other features of the Indiana System relevant to the State of Washington, together with excellent models for medical education already found in Washington.

Essentially, the present study is concerned with the numbers of physicians in Washington, their distribution and

its effect on medical care, continuing medical education, and recommendations to overcome identified deficiencies and thereby meet identified needs in training and retaining physicians for the State.*

*It should be recognized, however, that many personnel other than physicians, most of whom are outside the scope of this report, may also considerably influence the level of care received by citizens of the State of Washington. This report does deal with Medex (Chapter 3), but judicious use of other physician assistants as well as nurses, technicians, and so on may greatly increase an individual physician's output of patient care.

Chapter 2

PHYSICIAN SUPPLY AND DISTRIBUTION

Every year the Washington State Medical Association prepares a computer printout showing the county-by-county distribution of physicians in the state.[1] Transformed into the map on page 10, it provides a graphic illustration of one of the problems involved in the delivery of medical care. To put it simply, some counties are physician-rich, others woefully physician-poor. The reasons for this maldistribution of physicians are many and complex, not the least of which is the personal economic sacrifice often required of doctors who practice in rural areas. In addition, numerous complications exist in any analysis of physician supply and distribution. Consider:

> --Only four-fifths of the physicians licensed to practice in Washington and who have Washington addresses provide direct care to patients (using 1971 figures, this was 4,482 out of 5,689, or 79%). Some of those who do not render direct care are in specialties like occupational medicine, aerospace medicine, and public health; others may teach, do research, be administrators, or have retired.[2]
>
> --Patients do not follow county lines in seeking care. Geography, shopping patterns within trading areas, and previous residence or location of physician are some of the factors influencing where one goes for primary medical care, or first contact with medical personnel.[3]
>
> --Metropolitan areas should have a higher ratio

> of physicians to the population because they serve as referral centers for certain specialists who draw patients from large geographic areas. There would be no need for an open-heart surgeon in Grand Coulee, for example, but several practice in Seattle.[3]

Nevertheless, the discrepancies between the urban and rural areas of Washington are so great they immediately call attention to one problem. Washington suffers from a pronounced geographic maldistribution of physicians.

This maldistribution is responsible for a serious shortage of physicians in certain rural counties. With special services and consultations close at hand (radiology, pathology, probably a surgeon), a family physician might provide excellent medical care for about 2,000 people. Lacking such services he will have to devote time to them and may only be able to care for 500 persons by himself, particularly if he has to be responsible for patients in a local hospital.[4] (Even these figures are only grossly meaningful as averages. The efficiency of a given physician, and particularly his ability to use assistants well, will greatly influence his patient load. If he is able to delegate a significant share of his work to physician assistants, nurses, technicians, or even well-trained but essentially nonprofessiona. personnel, he may be able to care for twice as many people as a less efficient practitioner.[5])

Comparing these very rough guidelines with the ratios shown on the map, one gets an approximate idea of how de-

ficient certain counties may be. One must also remember that the figures on the map are inflated in some cases by the first complication listed above. Columbia County, for instance, had four physicians serving a population of 4,439, according to the 1972 printout. But two were over 65, and one of those was in public health.[6]

The most pronounced lack is among primary care physicians--those who first see patients and who treat conditions they can, referring patients with more complex conditions (when possible) to specialists. Primary care is often rendered by general practitioners, who are now more likely to be called family practitioners. But in many communities physicians who consider themselves specialists in internal medicine, pediatrics or general surgery may devote most of their time to primary care.

The shortage in this area is not only numerical--it is also related to the way physicians are educated and trained today. But we will review the numerical situation first. Because of the overlap possible between specialties delivering primary care, it is difficult to arrive at firm figures. Nevertheless, some estimates are available.

In 1970, for instance, a survey within the State of Washington indicated that "there are more than 80 towns and cities looking for general practitioners--some asking for more than one. Perhaps a fair guess would be that the

citizenry of the State would use and support around 200 more general practitioners if they were available--which they are not."[7] Mr. Roth Kinney, who prepared the report, stated recently that he would still consider the figure of 200 acceptable, but that he would reduce it by the number of Medex practicing in the state. (Medex are former military medical corpsmen who have been trained to deliver primary care under a physician's supervision.) In August 1972 there will be 67 Medex located in Washington. Accordingly, that would still leave a deficiency of 133 general or family practitioners in Washington, according to that estimate. Mr. Kinney said his figures apply to rural, not urban needs.[8] (It is obvious from the above figures that the Medex program, described in Chapter 3, has an important impact on physician needs in the State, and can play a significant role in improving the delivery of medical care.)

The University of Washington School of Medicine has prepared two estimates relating to attrition among present general and family practitioners in the State. The Department of Family Practice has as its present goal the preparation of 30-35 practitioners annually ("graduates" of residency programs), which the department chairman says would replace those lost by attrition.[9] A very preliminary estimate by the director for program and academic planning of the Health Sciences Center suggests that between 35 and 40 family

practitioners would meet the need for rural physicians on a yearly basis.[10]

Thus there is an identified shortage of family (general) practitioners or other primary care physicians in rural areas of the State. When the family practice program of the School of Medicine is able to turn out 35 trained practitioners a year (which will not be for several years), they will probably only make up for attrition among current physicians in rural areas. It should also be remembered, however, that Washington is a net importer of physicians trained in other states, and some family practitioners will be obtained in this way.

Does this suggest that increasing the number of physicians in the State would help overcome the imbalance and the shortages? Will the School of Medicine's plans to increase its output of medical students meet the need for physicians?

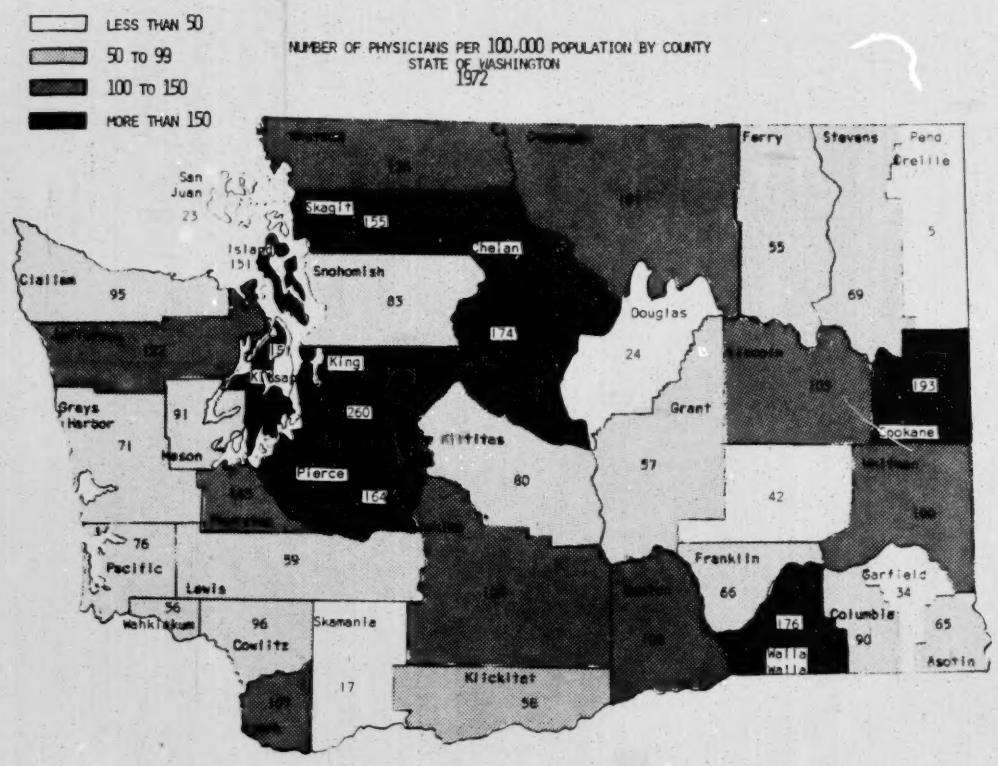
It is difficult to argue that simply having more physicians in a state or region will do away with imbalances and shortages. New York has the highest physician-to-population ratio of any state (236 physicians per 100,000 in 1970),[11] but many small upstate communities and low-income neighborhoods in New York City do not have adequate access to physicians.[12] As the Carnegie Commission on Higher Education noted in 1970, "Merely increasing the supply of physicians will not solve the problem of deficient health care in low-income

areas."[13] The same can be said for rural areas distant from metropolitan centers.

A graphic demonstration of the fact that sheer numbers of physicians will not correct maldistribution can be found in almost any metropolitan area of the country. A 1970 report of the Tacoma Area Urban Coalition noted that "the Pierce County ratio of 2.15 physicians per 1,000 population is higher than any other county in the state." And yet during a health care workshop in December 1969 many low-income consumers "recounted experiences of being unable to locate a physician, which necessitated use of a hospital emergency room." In one-fifth of the households surveyed (principally low-income) someone had wanted to see a doctor the previous year but was unable to do so, and in one-tenth someone had been refused assistance by a doctor's office.[14]

Another demonstration that merely increasing the number of physicians will not do the job comes from state statistics. In the last five years the ratio of physicians to population has risen nearly one-third in the State of Washington. And yet rural and urban discrepancies remain.

Year	Physicians/100,000 population[15]
1967	129
1968	136
1969	145
1970	158
1971	165
1972	171


LESS THAN 50
50 TO 99
100 TO 150
MORE THAN 150
NUMBER OF PHYSICIANS PER 100,000 POPULATION BY COUNTY
STATE OF WASHINGTON
1972
San Juan
23
Island
151
Skagit
151
Whatcom
138
Chelan
Okanogan
181
Ferry
55
Stevens
Pend Oreille
5
69
Clallam
95
Snohomish
83
Douglas
24
174
Adams
109
193
Spokane
King
Kitsap
Grays Harbor
91
71
Mason
Pierce
164
260
Kittitas
80
Grant
57
42
Whitman
Franklin
66
176
Walla Walla
Garfield
34
Columbia
90
65
Asotin
Pacific
76
Lewis
59
Wahkiakum
56
Cowlitz
96
Skamania
17
Klickitat
58

The figures given above are based on Washington State Medical Association records of M.D.'s licensed to practice in the State who have Washington addresses.

Unfortunately, it is difficult to compare these ratios with other estimates because the data bases are usually not the same. But it does appear that Washington is above the national average in the number of physicians per capita. According to the Medical Economics report, Washington had 153 physicians per 100,000 population in 1970, while the national average was 150.[16] An internal report of the University of Washington School of Medicine states that the National average of "approximately 150 active physicians per 100,000 population" in 1970 included interns, residents, and faculty; without them, the national average would be 119. The report states: "The comparable figure for Washington... is at present 154 physicians per 100,000 population...."[17]

Not only is there a good numerical supply of physicians in Washington--it is possible to document an oversupply among certain specialties in certain parts of the state. The same report just mentioned estimates that there is presently an excess of general surgeons and surgical specialists not only in Washington but in the Washington-Alaska-Montana-Idaho region. The only exceptions are in otolaryngology, which deals with diseases of the ears, nose, and throat, and obstetrics-gynecology. The excess may be as great as 40%. Fewer

general surgeons are needed in urban areas, but more are needed in rural practice. The report also suggests there are more anesthesiologists, pathologists, and radiologists than necessary, but that more dermatologists and perhaps more psychiatrists are needed in the State and the four-state region.

In general, the medical school report concludes that the State's output of residents and medical students is sufficient to meet Washington's numerical needs for the next 10 years, but not those of the entire four-state region, including Alaska, Montana, and Idaho.[18] (The present capacity of the medical school can accommodate an entering class of 125. This might be increased up to a maximum of 200 per class without the addition of new basic science facilities, but ways would have to be found to provide adequate clinical facilities for a class of this size.[19]) Obviously, however, there needs to be a redistribution of physicians in training among specialized areas.

The overall problem is not just limited to distribution, however, either by geography or by specialty. It involves the very nature of medical education. For several decades now American physicians have come out of medical schools and residency programs strongly oriented toward hospital-based practice, specialization, and the treatment of disease. They have not received much experience in dealing with ambulatory

patients, many of whom are well but worried, or the chronically ill who require social, psychological and economic assistance as much as they need medical help. As Dr. Theodore J. Phillips, chairman of the Department of Family Practice in the School of Medicine said, "Few if any of us involved in primary care were educated and trained appropriately whether we bear the label of and came from training programs in general practice, internal medicine, pediatrics, or whatever. Our present training programs provide the physician with inappropriate skills and fail to provide him with the appropriate ones."[20]

Recent changes in the School of Medicine curriculum, as well as new family practice residency opportunities being developed, should help toward overcoming the excessively specialized preparation of many physicians. Recent developments are also permitting more decentralization of medical education and residency training, particularly in rural doctors' offices and hospitals. It is hoped that this will encourage physicians in training to consider setting up practices outside the major metropolitan areas. The need for improved delivery of care to disadvantaged populations in urban areas is also recognized by the School of Medicine, but family practice teaching units outside the University in low-income areas have been difficult to establish and to fund. Long-range planning, however, calls for establishing such units.[21]

Chapter 3

WHAT WASHINGTON IS DOING

At least four major projects are under way in the State of Washington that are directly concerned with improving the distribution and character of medical care. Two have already made significant contributions, while the other two have long-range potential for making additional major contributions:

1. Training of Medex: The oldest and numerically the most productive project to date is the MEDEX Program. It was initiated in 1969 to train former military medical corpsmen, thousands of whom are discharged from the armed services annually, to render primary medical care under physician supervision. Each Medex receives three months of training at the University of Washington School of Medicine and then works for another 12 months with a preceptor physician in active practice. At the end of the 15-month period he usually enters practice with his preceptor. The term Medex comes from medecin extension, meaning that the Medex is an extension of the physician. The program is jointly sponsored by the medical school and the Washington State Medical Education and Research Foundation, an affiliate of the Washington State Medical Association.

The first class of 15 Medex was well received by both

preceptors and their patients. The program has continued to train ex-corpsmen and as of August 1972 will have 67 Medex practicing in the State of Washington (as well as seven each in Alaska and Idaho), the overwhelming majority in rural communities. Medex training following the Washington model has been initiated in eight other states and Washington, D.C.

The Medex extends a physicians's capacity by taking over many tasks that do not require the latter's extensive training. The Medex may screen patients to be seen by the doctor, either in the office or on house calls, may take emergency calls, take histories and perform parts of physical examinations, do laboratory work, assist at surgery, apply and remove casts, and so on.

The MEDEX Program has been funded federally by the National Center for Health Services Research and Development, part of the U.S. Public Health Service. Support is now at the rate of $1,000,000 a year. The present grant is due to expire in May 1973 but it is hoped that federal funding will continue beyond that time, since MEDEX is not only training but successfully placing its graduates in primary medical practice. The eventual goal is to make the program as nearly self-supporting as possible. Given the cost of this program thus far, however, a completely self-supporting program would seem unrealistic. In any event, once physicians are satisfied that Medex will be accepted by patients, will ease the doctor's work load,

and will bring in sufficient income to offset additional expenses, individual physicians may be willing to subsidize in large part their own future Medex through the training period. (Alaska physicians serving as preceptors already invest an average of $6,000 apiece in their Medex during the training period to make up for the high cost of living in that state.[1])

2. Rural Health Care Delivery System: In February 1971 the Washington State Medical Education and Research Foundation began a pilot project to develop "a coordinated medical care system for small rural...areas under physician leadership with specialist back up from large metropolitan medical centers."[2] The project has since expanded to cover nine counties in the northeast section of the state (Adams, Chelan, Douglas, Ferry, Grant, Lincoln, Okanogan, Pend Oreille, and Stevens). The Spokane County Medical Society provides the specialist support.

To date the project has performed two general types of service, either bringing specialists to rural areas when requested by a local physician, or assisting communities (including some outside the nine-county area) in attracting permanent physicians. Three towns (Brewster, Colville, and Omak) have been visited by Spokane specialists on a consultation basis at various times. The specialties represented are allergy, neurology, orthopedics, pathology, pediatrics, and

surgery. Staff members of the project have helped Twisp, Stevenson, and Ritzville arrange to receive one physician each on assignment from the National Health Service Corps; all three doctors are to be on the job this year. The National Health Service Corps is a federal program under which health professionals are supplied to areas lacking them. While the three physicians will only have a limited obligation to the Public Health Service, it is hoped they will establish permanent practices in the towns where they are assigned after their required service ends.

The rural health care delivery system has been funded for the last two years by the American Medical Association and the Washington State Medical Association. Total expenditures are $30,000 annually. Officials responsible for the project hope that its results will stimulate counties, municipalities, hospital districts, and other agencies within the state to contribute toward its continued support.[3]

3. Education and Training in Family Medicine:[4] The Division (now Department) of Family Medicine was established in the University of Washington School of Medicine in 1970. The department is responsible for developing undergraduate courses for medical students and graduate training (residency programs) in family medicine. Student interest in the first year has been heavy. Family medicine is one of four pathways provided in the curriculum to prepare young physicians to

meet their own career goals. In the first two classes choosing pathways after the start of a real family medicine program, between 40 and 50% of students in the entire class enrolled. Residency positions are all occupied with qualified applicants.

Medical school faculty anticipate that this double-barreled approach will give a significant share of the state's physicians-in-training much better preparation for practicing in the field of primary care. The department chairman, Dr. Phillips, feels that most young physicians are not learning about primary care. Their medical education has emphasized the biomedical sciences and their training experiences have largely involved serious illnesses requiring hospitalization and extensive treatment. But most patients seen by physicians having first contact with them (family or general practitioners, internists, pediatricians, perhaps some general surgeons) are ambulatory. They may have a chronic condition, but a majority are not so much sick as worried, or troubled with psychosomatic disorders. Psychological and social factors usually have as much or more influence than specific disease treatments under these circumstances. The family medicine programs are designed to give students and residents substantial experience dealing with patients seen in primary care.

The undergraduate curriculum includes course work in the basic or core program before students enter their chosen

pathways as well as an elective introductory course. Later on a family medicine course, required for the pathway, takes students into "a carefully selected Community Clinical Teaching Unit staffed by active family physicians in rural Washington towns. The first two of these units were established in the Spring of 1971" in Omak and Grandview.[5] Two others opened at Anacortes and Oak Harbor in July 1972.

Family practice residencies first became available in the State of Washington in 1970 at Doctors and Group Health Hospitals in Seattle. During the summer of 1972 a residency program also began at University Hospital in Seattle. In addition, 12 rotating interns training in Spokane hospitals have indicated an interest in entering family practice residencies next year. All told in the state during 1972-73 there are 14 first-year residents (not including the 12 Spokane interns, who could take second-year residencies next year; 14 second-year residents; and three third-year residents). With additions anticipated in Spokane next year, the present output will lead to the production of from 20 to 22 family practice physicians every year beginning in 1975 (the residency program requires three years to complete).

Residents not only work at the hospitals where they are stationed, but will also work in the community clinical units on two month rotation during the second year of residency. Sites for other residency programs outside the major metro-

politan areas are being sought. The Washington residency programs conform to the standards of the American Board of Family Practice and the American Medical Association's Council on Medical Education.

In the long run the Department of Family Medicine should play an important role in strengthening both family practice and rural medicine in the State of Washington. (See below regarding its urban role.) While present residency programs will only produce 20-22 family practitioners a year, the eventual goal of the department is to have an annual output of approximately 35 to offset the state attrition described earlier in this chapter.

Many of the expenses of the double-barreled approach are now being paid for by sources outside the University or the state. Specifically, the Community Clinical Teaching Units are being funded through the two major grants to the WAMI (Washington-Alaska-Montana-Idaho) Program described in the next section. These units each represent a total investment of approximately $60-65,000 per year. Expenses of resident education are presently borne by hospitals where the residents are assigned. While some of these costs are defrayed out of patient income, the annual deficit remaining can amount to something on the order of $7,500-10,000 per resident. Some hospitals are now objecting to making up this deficit by charging their patients for it. Furthermore, new rulings

may make it illegal within a few years for third party insurance to be billed for such expenses.[6]* The picture will be further complicated by the need to place family medicine residents in hospitals not previously engaged in graduate education, in order to give residents experience in rural areas of the state. This can impose a new financial burden on these hospitals which they may be unwilling or unable to accept.

When WAMI funding from outside grants ceases the State of Washington may find it advisable to pay expenses of the Community Clinical Teaching Units, which give medical students and residents first-hand experience with rural medicine, and which should help increase the numbers of future graduates entering rural practice. Furthermore, the state may find it advisable to defray unreimbursed costs of certain residency positions in family medicine in order to make more positions available and thereby attract young physicians both to the specialty and to Washington. As noted in a recent paper, "a high proportion of residents make their permanent location in the state in which they take their residency."[7]

These same recommendations should apply to the role of the Department of Family Medicine in encouraging more young

*These rulings may make necessary major changes in the funding of graduate medical education. Since they will have a nationwide effect, however, and will undoubtedly require solution at the national level, their impact was not specifically weighed in the present study.

physicians to go into family practice in low-income urban areas. There are pressing needs for physicians to serve the disadvantaged but the conventional pattern of medical education and training has not prepared such individuals. The department should provide opportunities for both students and residents to work in urban Community Clinical Teaching Units and hospital-associated Model Practice Units where the disadvantaged can be treated.

If private or federal funds cannot be attracted to support new experimental projects along this line, state funding might be considered. Once experimental projects have proved themselves, long-term funding may be required in order to assure a continued supply of necessary medical personnel. And if it proves difficult to recruit suitable individuals for urban low-income practice, providing financial incentives or paramedical personnel who can reduce the work load might require consideration.

In the meantime, the state should continue to provide suitable continuing support for medical care and education programs among the disadvantaged in the central cities, such as those at Harborview Medical Center in Seattle.

4. The WAMI Program for Regionalized Medical Education:[8] The WAMI Program is an experiment in expanding undergraduate and graduate medical education in the Washington-Alaska-Montana-Idaho region without making major investments in

physical plant and without the long lead time required for planning a new medical school. The expansion is to be accomplished by regionalizing the educational and training programs of the University of Washington School of Medicine. Also anticipated are cooperative projects with community colleges, other four-year institutions, and hospitals to facilitate the education and training of nurses and allied health personnel where they are critically needed. The result should be a better distribution of both medical teaching and patient care throughout the Pacific Northwest.

The University of Washington School of Medicine, which is the only medical school in the four-state region, will offer instruction to freshmen medical students not only at its Seattle campus but at other universities in the region. It will also provide clinical instruction later in medical school and during residency at the Community Clinical Teaching Units described in the last section. If the WAMI Program is successful, it "can serve as a model for similar programs elsewhere in the nation and help bring about a dramatic change in the existing institutional philosophy of medical school curriculum and of facilities development," according to one federal official.

The undergraduate phase of the program is described in Chapter 6. The community phase supports the clinical teaching units, which are expected to help attract young physicians

into rural areas. Each of these units could also serve as a nucleus for training programs for other health professionals in short supply.

The WAMI Program got under way with a $1,000,000 grant from the Commonwealth Fund of New York City for the period January 1971 through June 1974. It received further impetus with a $1,500,000 one-year contract beginning July 1, 1972, from the Division of Physician and Health Professions Education, a component of the National Institutes of Health. While the contract is renewable for two more years, the program is regarded by the division as "an experiment." The official government announcement of the contract stated: "If the program is successful, the participating states will be asked to begin assuming costs of operating the program... which will be far cheaper than establishing new medical schools."[9] Dr. M. Roy Schwarz, director of the WAMI Program, said that the government will begin phasing out the program during fiscal year 1975, which means that state support will have to be evident by then if the project is to continue.[10]

Chapter 4

LIFETIME LEARNING

Few laymen are probably aware just how closely the quality of medical care and the continued education of physicians (not to mention other medical personnel) are associated. In fact, the linkage is so tight that probably the most effective forms of continuing education are tied directly to the diagnosis and treatment of patients. These forms involve careful evaluation of present procedures in a hospital (the technique could also be applied to doctors' office practice), instruction related specifically to these procedures, and then a second, follow-up evaluation to be sure these procedures were improved.[1]

A patient naturally anticipates that his doctor will be competent in the latest procedures of care. But it is often difficult for physicians to remain abreast of new techniques. Developments come at such a dizzying pace that they cannot all be assimilated. Some are publicized initially but in actuality require long periods of trial and evaluation in major centers before they can enter the mainstream of practice. Those suited for widespread use may also necessitate a period of training and experience before a physician can use them himself. And the practicing physi-

cian, often inundated by the demands of the sick, must struggle to find time in which to learn about, evaluate for himself, and finally master those new procedures that relate to his own patients' needs.

Physicians recognize these problems as well as anyone. In fact, physicians placed in situations where they cannot remain current or where they have little opportunity to rub shoulders with their fellow practitioners are often dissatisfied. One study of doctors practicing in nonmetropolitan areas showed that nearly half (48%) of those in isolated rural counties cited the lack of "opportunities for professional growth" and "limited access to continuing medical education programs' as "liabilities in their practice." The author of this study suggested these liabilities "would tend to make it difficult to recruit young physicians for such areas."[2] Furthermore, another study indicated the same problems can be a contributing factor when physicians leave primary practice for other work. In this study, "Two-thirds worked alone, and many felt that they had less than a desirable amount of professional communication and exchange, although medical consultations were readily available."[3] These comments underscore one of the conclusions of a 1968 report on continuing education for physicians in the State of Washington: "Greater attention needs to be paid to the continuing medical education of the rural general

practitioner."[4]

These problems are particularly relevant for the present study. Unless continuing education and opportunities for professional growth can be strengthened, the State of Washington will undoubtedly continue to have problems maintaining a suitable distribution of physicians in rural communities.

At least four approaches have been devised for delivering continued medical education to physicians:

--Formal courses, symposia, and lectures

--Audio-visual presentations such as television programs and films

--Preceptorships where an individual physician learns a procedure under the direction of another individual qualified to teach it

--Education evolving out of an evaluation of medical practice in a specific hospital, and geared to needs identified by the physicians themselves

More and more medical educators are now acknowledging that the first approach is not sufficient, if it even has much value at all. Courses and lectures are more likely to be built around the faculty's interests and knowledge than the practitioner's interests and needs. Television and films can help reach a wide audience, but still may miss a substantial share of the audience; not everyone will turn on the television at a certain time, or turn up for a film showing, although films can be packaged for individual use. Preceptorships serve a valuable purpose but do not reach

everyone either. All three of these approaches are already being used by various organizations in Washington.

Today there is growing recognition that the most effective way to make continuing education work is to relate it specifically to physicians' continuing practice, and particularly to the care they render in the hospital. As one author has put it, "No better place exists to educate the physician than the institution in which he cares for his patients, meets his peers, and earns his living."[5]

Current Programs

For nearly 20 years the University of Washington School of Medicine has coordinated a traditional program of continuing education for physicians, including postgraduate courses, conferences, seminars, and the like. More recently, preceptorships and audiovisual presentations have become available, principally under the auspices of the Washington/Alaska Regional Medical Program. Most significant for the long run, however, is the practice-oriented program mentioned above. Because of its potential for providing the most effective continuing education of all, and because of the need for accelerating this program's development with proper financial support, it will be described in detail first.

1. Patient Care Appraisal--A Hospital-based System of Continuing Medical Education:[6] The Patient Care Appraisal (PCA) system provides a mechanism for continued medical

education that can be carried out in every hospital, small or large (it is also potentially adaptable to office practice as well). The procedure is simple to understand. Physicians on each hospital's staff decide what standards of care should apply for a given illness. Medical records for patients recently hospitalized with that illness are then sampled to find out whether the standards were met. If discrepancies between the standards and actual practice are discovered, they define the objective of the educational program. Instruction is planned to help the staff improve practice patterns so they conform more closely to the staff's own criteria. Following the period of instruction, a second sampling of patient records is taken to determine the exact impact of the refresher program.

On the surface, PCA resembles an audit of medical practice, but it is more than that. Evaluation of care is used specifically to direct education toward areas where it will influence physician behavior and improve the practice of medicine. The follow-up evaluation provides an accurate assessment of the contribution of continuing education. If practice patterns changed, learning took place; if they did not change, further action is still necessary. This marks a radical change in the traditional approach to continuing education, which has depended upon the interests of the teachers and has not been geared to the needs of practicing physicians

as measured by their performance and patient care.

PCA is now officially endorsed by the Washington State Medical Association. Members pay a $10 annual assessment that supports continuing education, and the major portion is allocated to PCA. The association's staff coordinator of medical education has prepared guidelines for use by hospital staffs and has led workshops explaining the procedures to be used. The association is the first to adopt such a program on a statewide basis. The regional Medical Program and the School of Medicine are also collaborating in the effort. At least 13 community hospitals have begun using the PCA process.

Additional financial support will undoubtedly be required if PCA is to achieve its full potential. The state medical association has made a commitment to the program (the $10 fee brings in about $35,000 annually,[7] most of which is utilized for PCA).

2. Post graduate Preceptorships: One of the classic methods of medical teaching is individualized instruction at the bedside. It is just as useful for the experienced physician as the young medical student. This technique has formed the basis for the postgraduate preceptorships offered during the last four years by the Regional Medical Program and the School of Medicine. Under this program "practicing physicians...return to teaching institutions with preceptors

of their choice for varying periods of time to refresh, reinforce and up-date knowledge and skills."[8] The physicians receive "individualized refresher training...based on their own stated objectives."[9]

Since its inception, "more than 140 physicians, the majority from communities with fewer than 20,000 population, have spent 840 study days in order to meet the needs they perceive in their practices."[10] According to an earlier breakdown, about two-thirds of these physicians come from Washington. Seventy percent are in general practice while another 19% are internists. Thus the preceptorship program has demonstrably reached physicians who render primary care in smaller communities.

Preceptorships have been offered not only in University of Washington affiliated hospitals but also community hospitals and even private offices; they have been given in Seattle, Tacoma, Spokane, and Yakima. The program is not limited to physicians but has provided refresher training for individuals in allied health professions as well.

Regional Medical Program support for preceptorships will end April 30, 1973. This project has served a useful purpose and should be continued. An addition of approximately $30,000 per year to the budget of the Division of Continuing Education would enable the division to take over and continue the preceptorship program. This amount would cover expenses

of an administrative assistant to coordinate the program, secretarial help, and travel for the staff. Physicians receiving preceptorships for their own professional growth could be asked to pay tuition, but tuition would probably be prohibitive if it had to cover administration costs as well as a stipend for the teacher. Tuition could be waived when physician training was designed to improve regionalization of care (for example, to allow kidney transplant patients to be cared for near home) or was provided for allied health personnel.

3. Audio-visual and Other Instructional Materials: The learning resources unit of the Washington/Alaska Regional Medical Program has produced 56 audio-visual programs for continuing medical education, together with related printed instructional materials. Videotaped medical television courses are telecast weekly on the statewide educational television network and have been loaned to more than 40 medical associations and schools across the United States. Evaluation shows that the number of physicians viewing the programs has risen steadily during the last four years, and that the majority of viewers are the rural physicians whose access to other methods of continuing education is restricted by the isolation of their practices. The films have also been packaged and distributed to many local hospitals so they can be viewed conveniently by physicians whenever they

need the information the films contain.

Support for the learning resources unit will also end in April 1973. Costs of production and distribution run on the order of $200,000 per year. This may be too expensive a project for the state to underwrite, considering the number of physicians reached. The evaluation referred to above showed that only "36 percent of [Washington] physicians [responding to the survey] watched one or more programs during the academic year 1970-71."[11]

4. Short Courses, Conferences, and Seminars: A recent report (April 1972) describes programs in this area: "Since 1954, the University of Washington School of Medicine has provided traditional continuing medical education programs without financial support from the state. Last year, the personnel and operating expenses required to arrange for or to co-sponsor short courses, conferences and seminars in Seattle and throughout the state were paid for through tuition. Although attendance at the circuit courses, which are presented in outlying centers...has continued to rise, tuition fees were insufficient to meet expenses, and continuance was threatened. The Washington State Medical Association responded by allocating $2,500 to help support the courses in 1972-73.

During Fiscal Year 1970 the Division of Continuing Education collected $62,533 in tuition for these courses.

In Fiscal Year 1971 the total was $84,842. As noted at the conclusion of Section 1, on PCA, competition from other organizations offering continuing education prohibits increasing tuition fees significantly to cover rising expenses. Since these courses meet a continued demand and will probably prove even more valuable when the PCA program begins to guide course content, they should be continued. If the deficit exceeds any contribution by the state medical association, a reasonable amount could be budgeted within the Division of Continuing Education for expenses beyond tuition payments.

Summary

Continuing medical education for physicians is essential to the delivery of first-rate medical care. It assumes particular importance in nonmetropolitan areas, where the actual presence of doctors may depend upon the opportunities for continued professional growth.

Programs already under way in the State of Washington provide excellent models for improving the distribution of continuing medical education. Once again, investment in selected parts of this educational program could go a long way toward meeting certain specific deficiencies within the state, and help improve the delivery of care in rural areas.

Chapter 5

A PLAN FOR WASHINGTON

House Bill No. 1079 originally evolved out of the idea of implementing certain parts of the Indiana Plan for Statewide Medical Education.[1] The bill was intended to strengthen graduate residency training in order "to attract and retain more physicians for the State of Washington..."[2] House Resolution No. 71-44, however, indicated a broader scope of concern than simply numbers of physicians. It specifically mentioned the needs of "the disadvantaged" and "the more rural and isolated communities," and the need to "replenish the field of family or general practice..."[3]

Accordingly, it is appropriate to analyze the Indiana Plan briefly to see whether it relates to (1) the concerns enumerated in Resolution No. 71-44 and (2) the true needs of the State of Washington.

The Indiana Plan

The Indiana Plan began in 1965 and gradually increased in scope until 1971 when it became a statewide medical education system. The principal concern in initiating the plan was simply "too few doctors...." It was apparent that Indiana was not attractive to young physicians. Not enough of those educated in the state remained there to practice, and not

enough educated elsewhere came to Indiana afterwards. The evidence was fairly clear-cut: Although the medical school in 1965 "produced more graduates than the total number of approved internships in all the hospitals of the state... the approved internship and residency places in the state were far from filled."[4]

A program to remedy this situation began in 1967 with enabling legislation and appropriations "for strengthening internships, residencies, and continuing medical education programs in community hospitals throughout the state." Between 1967 and 1971 $5,500,000 were invested. The funds were used "for the support of salaries of community directors of medical education, stipend supplements for interns and residents, the creation and maintenance of a medical telecommunications system, a program of visiting professorships and joint clinics, and a large number of individual grants-in-aid for community hospital education programs.[4] About half of this total was expended in stipends for interns and residents at participating community hospitals. In 1971-72 grants provided about $2,500 toward each stipend.[5]

According to Indiana University officials, "This program has helped stem the 'Indiana Brain Drain' of physicians. In 1971 there [were] 181 more interns and residents in the state than there were in 1967, a 42% increase.[4] This year there are 236 more than in 1967, a 55% increase.[6] These

changes occurred even though there has been no substantial increase in the number of medical students graduating.[4] Nevertheless, the growth in house staff positions has improved the physician to population ratio only slightly thus far. In 1967 this figure was 96 per 100,000, according to Indiana officials; in 1972 a rough estimate was that it had grown to perhaps 100 or 101.[6]

The second major feature of the Indiana program was a move to increase the number of entering medical students by teaching basic medical science courses (given during the first three semesters) at Universities in the state other than the medical school campus in Indianapolis. Today students may take these courses at five centers for medical education besides the medical school. In addition, many elective clinical courses (related to patient care) are taught in community hospitals around the state.[7] Thus the medical school has achieved a significant expansion of enrollment "without erecting a single new academic building or teaching hospital."[8] In 1967 entering students totaled 221.[7] In 1971, 273 freshmen medical students enrolled on six campuses. The goal is to increase this total to 320 by 1973.[8]

Some of the impetus for this ambitious program, now known as the Indiana Statewide Medical Education System, came from the Governor's Commission on Medical Education. The 32-member commission is made up of physicians, university

educators, and consumers of health care in almost equal proportions. It unanimously endorsed the statewide medical education concept. The Indiana University School of Medicine has been responsible for implementing the plan.[9]

The Indiana legislation also establishes a five-member Medical Education Board. The board "establish[es] policies for the use and expenditure of the money...appropriated for and in the intern-residency and appropriate graduate program...." It also "set[s] standards for qualification for participation" under provisions of the legislation. The makeup and responsibilities of the board proposed in House Bill No. 1079 for the State of Washington would be similar but not identical to those of the Indiana board.[10]

How Washington Differs from Indiana

As Chapter 1 of the present report makes clear, the situation in Washington is very different from that in Indiana--it is almost the opposite, in fact. Washington does not have "too few doctors"; it is well supplied with them. Internship positions exceed the number of Washington medical school graduates by a large percentage each year (38% in 1971, 44% in 1972), and both intern and resident positions are largely filled. While young physicians were not being attracted to Indiana in 1965, they are attracted to Washington. As a medical school report notes, "the flow of physicians into the state [Washington] far exceeds the

number of state trainees who leave the state, a circumstance very rare among states with medical schools."[11] Even without the equivalent of an Indiana Plan, the ratio of physicians to the population has risen about six times faster in Washington than Indiana.[12]

Two problems of principal concern to the State of Washington, better distribution of rural and urban care, particularly by family practitioners and other first contact physicians, are not addressed directly by the Indiana System. Officials in Indiana believe the decentralization of undergraduate work and of intern and resident training will improve the "regionalization" of medicine in the state. To date, however, growth outside the metropolitan center of Indianapolis has not occurred as rapidly as had been hoped. A family medicine program is in early stages of development.[13] Continuing medical education is a part of the Indiana System.

As far as undergraduate medical education is concerned, the State of Washington is in no position to attempt as ambitious a program as that in Indiana, nor need it do so. Five university campuses outside Indianapolis are being utilized for basic science courses, but only one equivalent campus is available in Washington, at Washington State University. The Seattle campus of the School of Medicine in fact has the capacity to handle more students than are presently enrolled.[14] The principle of decentralization will be useful,

however, for the WAMI Program, and is already being applied there. In the fall of 1971 nine university of Washington freshmen medical students took their first semester courses at the University of Alaska. A similar program is planned for the fall of 1972 at Washington State University in collaboration with the University of Idaho at nearby Moscow, Idaho.[15] With suitable support from the other states involved in WAMI, decentralization of the initial stage of medical education could be expanded.

A Plan for Washington

An analysis of Washington's needs and accomplishments to date, and a comparison of its situation with that in Indiana, suggests that the State of Washington should devise a program specifically suited to its own needs for training and retaining physicians. It needs doctors with a new approach to care, based on a new emphasis in education and training, not just more doctors. And its medical community, both in private practice and in the field of education, have developed approaches to continuing medical education which are not a part of the Indiana System. This report accordingly recommends a program based principally on the models available in the State of Washington, some of which are already of proven worth, and some of which demonstrate great promise for the future.

Specifically, this report recommends the following broad approach, whose features are explained more thoroughly

in Chapters 3 and 4:

1. Family medicine within the University of Washington School of Medicine should be given continued long-range support necessary to make it an effective force in the development of new practitioners to deliver primary medical care, both in the rural counties and among the urban disadvantaged. This will probably require:

--support of the undergraduate and graduate teaching programs at the Community Clinical Teaching Units located in rural (and eventually urban) areas; the former are now funded under the WAMI Program, federal support for which will be phased out in Fiscal Year 1975.

--support of selected graduate (residency) education and training programs in family medicine being conducted by hospitals; this may require capitation payments to defray some unreimbursed expenses of resident positions, or partial funding of directors of medical education to supervise such programs.

2. Continuing education of physicians should be given continued long-range support because of the important role such education plays in maintaining a high level of care and in retaining practitioners in rural areas. This should include:

--support for certain elements of the Patient Care Appraisal educational system, such as community

directors of continuing education, School of Medicine faculty to provide suitable education at the request of community physicians in their own hospitals, and visiting lectureships.

--support through the School of Medicine for the administration and coordination effort behind the preceptorship program, which provides individualized postgraduate training for practitioners, primarily those in smaller communities; and support to defray modest annual deficits that may be incurred in the traditional short courses, conferences, and seminars, most of which are paid for out of tuition.

NOTES

Chapter 1

1. State of Washington House Bill No. 1079, Section 1.

2. House Bill No. 1079, Section 2.

3. State of Washington House of Representatives Resolution No. 71-44.

4. Letters from John A. Moyer, M.D., president, Spokane County Medical Society, March 25, 1971; Robert L. Van Citters, M.D., dean, University of Washington School of Medicine, March 26, 1971; and John L. Wright, M.D., chairman, King County Council on Community Medical Education, March 29, 1971; all to Harlan R. Knudson, director of government affairs, Washington State Medical Association.

Chapter 2

1. "Distribution of Ages by Specialty for the State of Washington," county by county computer printout for the Washington State Medical Association, Jan. 1, 1972.

2. "The Location and Placement of Physicians in the State of Washington 1971," manuscript by Roth Kinney, director of planning and research, Washington State Medical Association, page 2.

3. Telephone interview with Mr. Kinney, June 12, 1972.

4. Telephone interviews with Mr. Kinney, June 12, 1972,

and Theodore J. Phillips, M.D., chairman, Department of Family Medicine, University of Washington School of Medicine, June 14, 1972.

5. Telephone interview with Mr. Kinney, June 19, 1972.

6. "Distribution of Ages by Specialty for the County of Columbia," unnumbered page from printout for the Washington State Medical Association, Jan. 1, 1972.

7. "The General Practitioner of the State of Washington: A Survey of Education, Distribution, Work Load, and Activities" by Roth Kinney, Washington State Medical Education and research Foundation (an affiliate of the Washington State Medical Association), May 1970, pp. 1-2.

8. Telephone interview with Mr. Kinney, June 12, 1972.

9. Personal interview with Dr. Phillips, April 25, 1972.

10. Personal interview with Roger L. Bennett, director of program and academic planning, Health Sciences Center, University of Washington, April 28, 1972.

11. Medical Economics, Jan. 18, 1971, page 101.

12. "Health Corps: Doctors Where There are None," The New York Times, May 28, 1972, and "Higher Education and the Nation's Health: Policies for Medical and Dental Education," Carnegie Commission on Higher Education, October 1970, page 18.

13. "Higher Education and the Nation's Health: Policies for Medical and Dental Education," page 19.

14. "The Tacoma Health Delivery System, A Comparative Study: Low and Middle Income Consumers" by Bob Pfotenhauer, Tacoma Area Urban Coalition, undated, pp. 1, 32, 42.

15. "The Location and Placement of Physicians in the State of Washington 1971," page 1, and telephone interview with Mr. Kinney, June 12, 1972.

16. Medical Economics, Jan. 18, 1971, page 101.

17. "Physician to Population Ratios for the State of Washington and WAMI," a report of the Subcommittee of Clinical Heads on Residency and Clinical Affairs, University of Washington School of Medicine, Feb. 25, 1972, page 7.

18. "Physician to Population Ratios for the State of Washington and WAMI," pp. 18-20.

19. Personal interview with Robert L. Van Citters, M.D., dean, University of Washington School of Medicine, April 25, 1972.

20. Telephone interview with Dr. Phillips, May 27, 1972.

21. Personal interview with Dr. Phillips, April 25, 1972, and telephone interview June 14, 1972.

Chapter 3

1. "MEDEX: A Program To Extend the physician's Capacity," pamphlet published by the MEDEX Communication Center, Nov. 1970; "MEDEX" by Richard A. Smith, M.D., The Journal of the American Medical Association, March 16, 1970, pp. 1843-45; "The Distribution of Medex," manuscript prepared by the

Washington State Medical Education and Research Foundation, April 10, 1972; personal interview with Dr. Smith, associate professor of preventive medicine and director, MEDEX Program, University of Washington School of Medicine, April 25, 1972, and telephone interview June 6, 1972.

2. "A Proposal for the Continuation and Expansion of the Pilot Project in Developing a Health Care Delivery System in the State of Washington (Adams, Lincoln, and Adjoining Counties)--Phase II," Washington State Medical Education and Research Foundation, July 1, 1971, page 1.

3. Personal interviews with Mr. Kinney and Garth Wright, project director for the rural health care delivery system, Washington State Medical Education and Research Foundation, April 28, 1972, and Telephone interviews June 1 and 12 (Kinney) and June 23 (Wright).

4. The findings reported in this section were obtained from the following sources, except where otherwise noted: "Department of Family Medicine Annual Report 1970-1971"; "University of Washington Affiliated Hospitals Family Practice Residency," typewritten description, July 20, 1971; two-page typewritten description of the Department of Family Medicine, Nov. 15, 1971; personal interview with Dr. Phillips, April 25, 1972, and telephone interviews May 27, June 14, and July 7, 1972; telephone interview with Thomas Johnson, M.D., director, Education Division, American Academy of Family Practice,

Kansas City, Mo., May 30, 1972; and telephone interview with M. Roy Schwarz, M.D., associate dean and director, WAMI Program, University of Washington School of Medicine, June 20, 1972.

5. "Department of Family Medicine Annual Report 1970-1971," pp. 16-17.

6. "Highlights from and Comments on Public Hearings on Filing of Philadelphia Blue Cross for Subscriber Rate Increase, March 17-20 and 22, 1971," manuscript by Leon A. Korin, assistant director, The Hospital Association of Pennsylvania, March 29, 1971, page 10, and telephone interview with August G. Swanson, M.D., director of academic affairs, Association of American Medical Colleges, Washington, D.C., June 8, 1972.

7. "Planning Residency Programs Based on Physician Projections," paper by Roger L. Bennett presented at the American Medical Association annual meeting June 1972, page 1.

8. The findings reported in this section were obtained from the following sources, except where otherwise noted: "The WAMI Program, A Concept of Regionalized Medical Education," manuscript by Dr. Schwarz, April 18, 1972; "WAMI, A Proposal for the Regionalization of Medical Education in the Pacific Northwest," manuscript by Dr. Schwarz, undated; personal interview with Dr. Schwarz April 25, 1972, and telephone interview June 20, 1972.

9. National Institutes of Health news release May 25,

1972, page 2.

10. Telephone interview with Dr. Schwarz, June 20, 1972.

Chapter 4

1. Many of the ideas incorporated in this chapter emerged from personal interviews with Thomas F. Sheehy, Jr., M.D., chairman, Continuing Medical Education Committee, Washington State Medical Association; John N. Lein, M.D., associate dean and director of continuing medical education, University of Washington School of Medicine; and Robert C. Davidson, M.D., associate director for continuing medical education, Washington/Alaska Regional Medical Program, on April 24, 25, and 26, 1972, and subsequent telephone interviews with Dr. Lein and Dr. Davidson.

2. "Physicians' Views of Medical Practice in Nonmetropolitan Communities" by Bond L. Bible, Ph.D., Public Health Reports, January 1970, page 15.

3. "Reasons Physicians Leave Primary Practice" by Ronald L. Crawford, M.D., and Regina C. McCormack, M.D., Journal of Medical Education, April 1971, page 265.

4. "A Survey of Continuing Medical Education for Physicians in the State of Washington--Phase I," Washington State Medical Education and Research Foundation and the Washington/Alaska Regional Medical Program, Sept. 1968, page 4.

5. "The Pyramid of Care and Education Within the Hospital" by Robert L. Evans, M.D., reprinted by the Association for

Hospital Medical Education, 1970, page 3.

6. The findings reported in this section were obtained from the following sources, except where otherwise noted: "Patient Care Appraisal: What? Why? How?" by William R. Johnson, Ed.D., staff coordinator of medical education, Washington State Medical Association, March 10, 1972, and personal interviews with Dr. Sheehy, Dr. Lein, and Dr. Davidson, April 24-26, 1972.

7. Telephone conversation with Harlan R. Knudson, director of government affairs, Washington State Medical Association, June 8, 1972.

8. "Postgraduate Preceptorships" by Robert C. Davidson, M.D., John N. Lein, M.D., Amos P. Bratrude, M.D., and Joan M. Kelday, M.S.J., The Journal of the American Medical Association, March 15, 1971, page 1799.

9. Personal interview with Dr. Lein, April 24, 1972.

10. Tabulation from Washington/Alaska Regional Medical Program, Feb. 1, 1968 through April 30, 1971.

11. "A Survey of Physician Attitudes Toward the W/ARMP Continuing Medical Education Television Programs, 1971" by Robert J. Cullen, Ph.D., December 1971, page 5.

Chapter 5

1. Letter from John A. Moyer, M.D., president, Spokane County Medical Society, March 25, 1971, to Harlan R. Knudson, director of government affairs, Washington State Medical

Association.

2. House Bill No. 1079, Section 1.

3. House Resolution No. 71-44.

4. "Statewide Medical Education in Indiana," mimeographed statement by Steven C. Beering, M.D., George T. Lukemeyer, M.D., and Glenn W. Irwin, Jr., M.D., August 8, 1971, page 1.

5. "Statewide Medical Education System Reverses Indiana's 'Brain Drain,'" Your University, November-December 1971, page 6 of reprint.

6. Telephone interview with George T. Lukemeyer, M.D., executive associate dean, Indiana University School of Medicine June 6, 1972.

7. "Statewide Medical Education in Indiana," page 2.

8. "Statewide Medical Education in Indiana," page 5.

9. "Statewide Medical Education in Indiana," page 3.

10. Indiana Senate Enrolled Act No. 359, effective July 1, 1967, Sections 2 and 3; and House Bill No. 1079, Sections 2 and 3.

11. "Physician to Population Ratios for the State of Washington and WAMI," a report of the Subcommittee of Clinical Heads on Residency and Clinical Affairs, University of Washington School of Medicine, February 25, 1972, page 20.

12. Note 5, above, and page 9 this report.

13. Telephone interview with Dr. Lukemeyer, June 6, 1972.

14. Personal interview with Robert L. Van Citters, M.D.,

dean, University of Washington School of Medicine, April 25, 1972.

15. Personal interview with M. Roy Schwarz, M.D., associate dean and director, WAMI Program, University of Washington School of Medicine, April 25, 1972.

16. House Bill No. 1079, Section 3

17. 1970-71 Annual Report, Department of Family Medicine, University of Washington School of Medicine, page 17.